



# **DOD PATIENT SAFETY CENTER ALERT**

## **(1-04)**

### **CONCENTRATED ELECTROLYTE SOLUTIONS and HIGH DOSE EPINEPHRINE**

The accidental administration of concentrated electrolyte solutions such as potassium chloride, potassium phosphate and sodium chloride and their tragic results are well documented.<sup>1</sup> Time and time again these products have been mistakenly used and the result is frequently serious harm or death to the patient. The 2003 Joint Commission on Accreditation of Healthcare Organization (JCAHO) National Patient Safety Goals include removal of all concentrated electrolyte solutions from patient care units.

A similar hazardous situation exists with concentrated epinephrine 1:1000 (1mg/1mL) solution.<sup>2</sup> This drug comes packaged in a 30 mL vial and has been confused with lidocaine with epinephrine and well as ephedrine. Several serious injuries and deaths have been associated with these mix-ups and storage precautions should be similar to that of concentrated electrolyte solutions.

Epinephrine 1:1000 in 30 mL vials represents a particular threat and should be removed from all patient care areas including the OR and Labor and Delivery. Additionally, the storage of this particular product (in the 30 mL size) on crash carts should be scrutinized since high-dose epinephrine use during cardiopulmonary resuscitation is no longer supported.<sup>3</sup> Pharmacy should prepare all infusions, irrigations, and bolus doses of these products. If storage outside of pharmacy is required it should have restricted access such as a controlled access automated dispensing cabinet.<sup>1,3</sup>

Finally, pharmacy and nursing staff should routinely inspect patient care areas for these potentially dangerous medications. Additional recommendations for the safe use of hazardous medications can be found at the JCHAO website (<http://www.jcaho.org/>) and their sentinel event alerts.<sup>4,5</sup>

References:

1. Looks like a problem: Ephedrine – Epinephrine. Institute for Safe Medication Practice Medication Safety Alert Acute Care Newsletter April 17, 2002.
2. American Heart Association and International Liaison Committee on Resuscitation. Guidelines 2000 for cardiopulmonary resuscitation and emergency cardiovascular care. An international consensus on science. Circulation. 2000; 102 (suppl 1):1-384.).
3. Lambert DH. Concentrated solutions cause concern. Letter. APSF Newsletter 2002; 17:65.
4. JCAHO Sentinel Event Alert Issue 11 - November 19, 1999.
5. JCAHO Sentinel Event Alert Issue 16 - February 27, 2001.

Prepared by: LCDR Ron Nosek

[nosekr@afip.osd.mil](mailto:nosekr@afip.osd.mil)

21 November 2003